

REMARKS

Reconsideration of this application is respectfully requested.

In the Official Action, the Examiner has rejected claims 1-4 and 8-11 under 35 USC 102(b) as being anticipated by United States Patent No. 5,961,454 to Kooy et al., (hereinafter "Kooy"). Furthermore, the Examiner has rejected claims 5-7 and 12-14 under 35 USC 103(a) as unpatentable over Kooy in view of United States Patent No. 6,385,476 to Osadchy et al., (hereinafter "Osadchy").

In response, Applicants respectfully traverse the Examiner's rejections under 35 U.S.C. §§ 102(b) and 103(a) for at least the reasons set forth below.

Turning now to the prior art, Kooy discloses a first image which is a two-dimensional real time image such as a CT stereoscopic slice, where the image is superimposed to a 3-D image (second image) of an MRI to determine the position of the first image slice in the spatial registration of the second image (see column 1, lines 30-47; column 2, line 64 to column 3, line 27; and column 3, lines 33-51 of Kooy).

In stark contrast, in the present invention as recited in claims 1 and 8, the first image is a real image input from the image input unit. Thus, a feature of the present invention is that the first image is superimposed on a second image comprising three-dimensional data, to thereby detect the present position of the image input unit.

The examiner states that Kooy discloses a real time image. The Applicants respectfully disagree. It should be noted that the first image of the present invention is a real image obtained by, e.g., a rigid endoscope, and the real image enables the operator to directly view the state of the affected part. In this regard, the real image is different from an image obtained by a CT.

The two references cited by the examiner, i.e., Kooy and Osadchy, both disclose superposition of a CT image and an image obtained by fluoroscopy or MRI, but do not disclose superposition of a real image obtained by a rigid endoscope and a three-dimensional image. The examiner states that the registration of the two-dimensional stereotactic image slices are a subset of the 3D image data, therefore, it is disclosed in Kooy that the first image data is smaller than the 3D image. Applicants again respectfully disagree.

Claim 1 and 8 of the present application recite that the display area of the second image output is larger than that of the first image output. Such a recitation does not relate to the data size of the images. Kooy discloses that 3D data and two-dimensional stereotactic image slice are displayed while being superposed. However, in Kooy, the display of the 3D data is equivalent to that of the two-dimensional stereotactic image slice. Namely, Kooy does not disclose that the display area of the 3D data is larger than the two-dimensional stereotactic image slice. On the other hand, claim 1 of the present application teaches as an important feature of the invention that the second image display area is larger than the first image display area. In other words, the second display area generated from the data of a subject which is recorded in advance is provided in an area provided around the first image display area and larger than the first image display area.

With regard to the rejection of claims 1-4 and 8-11, under 35 U.S.C. § 102(b), a medical image display apparatus and method, as recited in independent claims 1 and 8 and having the features described above, is nowhere disclosed in Kooy. Since it has been decided that “anticipation requires the presence in a single prior art reference, disclosure of each and

every element of the claimed invention, arranged as in the claim,”¹ independent claims 1 and 8 are not anticipated by Kooy. Accordingly, independent claims 1 and 8 patentably distinguish over Kooy and are allowable. Claims 2-4 and 9-11 being dependent upon claims 1 and 8 are thus at least allowable therewith. Consequently, the Examiner is respectfully requested to withdraw the rejection of claims 1-4 and 8-11 under 35 U.S.C. § 102(b).

With regard to Osadchy, the Examiner argues that the same discloses that image fusion or superpositioning to two images are done with three dimensional imaging including wire frame or surface mapping of the region of interest and applying the first or real images to the mapped surface (see column 2, line 43 to column 3, line 25 of Osadchy). Applicants respectfully disagree and submit that Osadchy discloses that the first or real images are applied to the mapped surface of the three-dimensional image, but does not disclose that the wire frame image is applied. Furthermore, Applicants respectfully submit that Osadchy discloses using an outline image and not a wire frame image as argued by the Examiner. Therefore, there is no motivation or suggestion to combine the teachings of Osadchy with those of Kooy. Furthermore, even if there were a motivation or suggestion to combine such references, the combination of Kooy and Osadchy does not teach or suggest all of the features of independent claims 1 and 8.

With regard to claims 5-7 and 12-14, since independent claims 1 and 8 patentably distinguish over the prior art and are allowable, claims 5-7 and 12-14 are at least allowable therewith because they depend from an allowable base claim.

In other words, independent claims 1 and 8 are not rendered obvious by the cited references because neither the Kooy patent nor the Osadchy patent, whether taken alone

¹ Lindeman Maschinenfabrik GMBH v. American Hoist and Derrick Company, 730 F.2d 1452, 1458; 221 U.S.P.Q. 481, 485 (Fed. Cir., 1984).

or in combination, teach or suggest a medical image display apparatus and method having the features described above. Accordingly, claims 1 and 8 patentably distinguish over the prior art and are allowable. Claims 5-7 and 12-14 being dependent upon claims 1 and 8 are thus allowable therewith. Consequently, the Examiner is respectfully requested to withdraw the rejection of claims 5-7 and 12-14 under 35 U.S.C. § 103(a).

Furthermore, Applicants respectfully submit that claims 2-7, and 9-14 patentably distinguish over the cited references independently of their base claims and are allowable.

With respect to claim 2, Kooy discloses that the second display area is superposed on the first display area. However, Kooy does not disclose or suggest that the second display area is provided around the first display area. Nor does Kooy disclose that the first display area is a real image of a subject.

The Examiner argues that with respect to claim 3, that Kooy discloses that the first and second images are displayed on a separate display with boundary indication of the overlapping region between the first and second image (see column 4, line 53 to column 5, line 5 of Kooy). Applicants respectfully disagree. According to claim 3, the second display area is provided outwardly of the first display area, and an overlapped portion in the boundary between the first and second display areas is located at an outer peripheral portion of the first display area.

Kooy discloses that the first and second display areas are displayed while being superposed, but does not disclose or suggest that an overlapped portion is located in the boundary between the first and second display areas.

With respect to claim 4, Kooy does not disclose that the second display area is provided around the first display area. Nor does it disclose that only the outline of a data image of a subject is displayed in the first area, and the whole of the data image of the subject is displayed in the second display area.

With regard to claim 5, as discussed above, Osadchy discloses using an outline image and not a wire frame image as recited in claim 5.

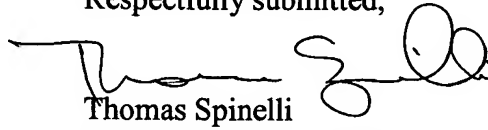
Claim 6 recites that the data image of a subject is formed by dots. Such a feature is not disclosed in either Osadchy or Kooy. When the data image of a subject is formed by dots as in claim 6, it is more simply displayed than in the case where a wire frame image is formed. Also, the shape of the subject can be easily grasped. Furthermore, when a top distribution is expressed by dots, the shape of a detected object can be easily understood. Such features and their advantages are neither disclosed nor suggested by Kooy or Osadchy.

With respect to claim 7, neither Kooy nor Osadchy disclose that the data image of a subject is a surface image, and the surface image is displayed through a real image of the subject. Claim 7 recites that the surface image is displayed through the real image of the subject, as a result of which the shape of top distribution can be easily grasped. This results in a specific advantage over systems of the prior art, including those disclosed in Kooy and Osadchy.

Claims 9-14 are method claims having similar features to apparatus claims 2-7. Accordingly, the above arguments concerning claims 2-7 are also applicable to claims 9-14. Thus, Applicants respectfully submit that claims 2-7 and 9-14 patentably distinguish over the cited references and are allowable independently of their base claims.

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



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